

## Federal Communications Commission

## § 25.138

with all applicable Commission milestones, reporting requirements, and any other applicable service rules required for non-U.S. licensed systems to operate in the United States.

[62 FR 64172, Dec. 4, 1997, as amended at 64 FR 61792, Nov. 15, 1999; 65 FR 16327, Mar. 28, 2000; 65 FR 59143, Oct. 4, 2000]

### § 25.138 Blanket licensing provisions of GSO FSS Earth Stations in the 18.58–18.8 GHz (space-to-Earth), 19.7–20.2 GHz (space-to-Earth), 28.35–28.6 GHz (Earth-to-space) and 29.5–30.0 GHz (Earth-to-space) bands.

(a) All applications for a blanket earth station license in the GSO FSS

in the 18.58–18.8 GHz, 19.7–20.2 GHz, 28.35–28.6 GHz and 29.5–30.0 GHz bands that meet the following requirements shall be routinely processed:

(1) GSO FSS earth station antenna off-axis EIRP spectral density for co-polarized signals shall not exceed the following values, within  $\pm 3^\circ$  of the GSO arc, under clear sky conditions:

18.5–25log( $\theta$ )–10log(N) ...	dBW/40kHz	.....	for $2.0^\circ \leq \theta \leq 7^\circ$
–2.63–10log(N) .....	dBW/40kHz	.....	for $7^\circ \leq \theta \leq 9.23^\circ$
21.5–25log( $\theta$ )–10log(N) ...	dBW/40kHz	.....	for $9.23^\circ \leq \theta \leq 48^\circ$
–10.5–10log(N) .....	dBW/40kHz	.....	for $48^\circ < \theta \leq 180^\circ$

Where:

$\theta$  is the angle in degrees from the axis of the main lobe; for systems where more than one earth station is expected to transmit simultaneously in the same bandwidth, *e.g.*, CDMA systems,

N is the likely maximum number of simultaneously transmitting co-frequency earth

stations in the receive beam of the satellite; N=1 for TDMA and FDMA systems.

(2) GSO FSS earth station antenna off-axis EIRP spectral density for co-polarized signals shall not exceed the following values, for all directions other than within  $\pm 3^\circ$  of the GSO arc, under clear sky conditions:

21.5–25log( $\theta$ )–10log(N) ...	dBW/40kHz	.....	for $3.5^\circ \leq \theta \leq 7^\circ$
0.37–10log(N) .....	dBW/40kHz	.....	for $7^\circ < \theta \leq 9.23^\circ$
24.5–25log( $\theta$ )–10log(N) ...	dBW/40kHz	.....	for $9.23^\circ < \theta \leq 48^\circ$
–7.5–10log(N) .....	dBW/40kHz	.....	for $48^\circ < \theta \leq 180^\circ$

Where:

$\theta$ : is the angle in degrees from the axis of the main lobe; for systems where more than one earth station is expected to transmit simultaneously in the same bandwidth, *e.g.*, CDMA systems.

N: is the likely maximum number of simultaneously transmitting co-frequency earth stations in the receive beam of the satellite; N=1 for TDMA and FDMA systems.

(3) The values given in paragraphs (a) (1) and (2) of this section may be ex-

ceeded by 3 dB, for values of  $\theta > 10^\circ$ , provided that the total angular range over which this occurs does not exceed  $20^\circ$  when measured along both sides of the GSO arc.

(4) GSO FSS earth station antenna off-axis EIRP spectral density for cross-polarized signals shall not exceed the following values, in all directions relative to the GSO arc, under clear sky conditions:

8.5–25log( $\theta$ )–10log(N) .....	dBW/40kHz .....	for $2.0^\circ \leq \theta \leq 7^\circ$
12.63–10log(N) .....	dBW/40kHz .....	for $7^\circ < \theta \leq 9.23^\circ$

Where:

$\theta$ : is the angle in degrees from the axis of the main lobe; for systems where more than one earth station is expected to transmit simultaneously in the same bandwidth, *e.g.*, CDMA systems.

N: is the likely maximum number of simultaneously transmitting co-frequency earth stations in the receive beam of the satellite; N=1 for TDMA and FDMA systems.

(5) For earth stations employing uplink power control, the values in paragraphs (a) (1), (2), and (4) of this section may be exceeded by up to 20 dB under conditions of uplink fading due to precipitation. The amount of such increase in excess of the actual amount of monitored excess attenuation over clear sky propagation conditions shall not exceed 1.5 dB or 15 % of the actual amount of monitored excess attenuation in dB, whichever is larger, with a confidence level of 90 percent except over transient periods accounting for no more than 0.5% of the time during which the excess is no more than 4.0 dB.

(6) Power flux-density (PFD) at the Earth's surface produced by emissions from a space station for all conditions, including clear sky, and for all methods of modulation shall not exceed a level of –118 dBW/m<sup>2</sup>/MHz for the band 19.7–20.2 GHz.

(b) Each applicant for earth station license(s) that proposes levels in excess of those defined in paragraph (a) of this section shall submit link budget analyses of the operations proposed along with a detailed written explanation of how each uplink and each transmitted satellite carrier density figure is derived. Applicants shall also submit a narrative summary which must indicate whether there are margin shortfalls in any of the current baseline services as a result of the addition of the applicant's higher power service, and if so, how the applicant intends to resolve those margin shortfalls. Applicants shall certify that all potentially affected parties (*i.e.*, those GSO FSS

satellite networks that are 2, 4, and 6 degrees apart) acknowledge and do not object to the use of the applicant's higher power densities.

(c) Licensees authorized pursuant to paragraph (b) of this section shall bear the burden of coordinating with any future applicants or licensees whose proposed compliant operations at 6 degrees or smaller orbital spacing, as defined by paragraph (a) of this section, is potentially or actually adversely affected by the operation of the non-compliant licensee. If no good faith agreement can be reached, however, the non-compliant licensee shall reduce its earth station and space station power density levels to be compliant with those specified in paragraph (a) of this section.

(d) The applicant shall provide for each earth station antenna type, a series of radiation patterns measured on a production antenna performed on a calibrated antenna range and, as a minimum, shall be made at the bottom, middle, and top frequencies of the 30 GHz band. The radiation patterns are:

(1) Co-polarized patterns for each of two orthogonal senses of polarizations in two orthogonal planes of the antenna.

(i) In the azimuth plane, plus and minus 10 degrees and plus and minus 180 degrees.

(ii) In the elevation plane, zero to 30 degrees.

(2) Cross-polarization patterns in the E- and H-planes, plus and minus 10 degrees.

(3) Main beam gain.

(e) Protection of receive earth stations from adjacent satellite interference is based on either the antenna performance specified in § 25.209 (a) and (b), or the actual receiving earth station antenna performance, if actual performance provides greater isolation from adjacent satellite interference. For purposes of insuring the correct level of protection, the applicant shall provide, for each earth station antenna

type, the antenna performance plots for the 20 GHz band, including the format specified in paragraph (d) of this section.

(f) The earth station licensee shall not transmit towards a GSO FSS satellite unless it has prior authorization from the satellite operator or a space segment vendor authorized by the satellite operator. The specific transmission shall be conducted in accordance with the operating protocol specified by the satellite operator.

(g) A licensee applying to renew its license must include on FCC Form 405 the number of constructed earth stations.

[65 FR 54169, Sept. 7, 2000]

#### SPACE STATIONS

##### **§ 25.140 Qualifications of fixed-satellite space station licensees.**

(a) New fixed-satellites shall comply with the requirements established in Report and Order, CC Docket No. 81-704 (available at address in § 0.445 of this chapter.) Applications must also meet the requirements in paragraphs (b) through (d) of this section. The Commission may require additional or different information in the case of any individual application. Applications will be unacceptable for filing and will be returned to the applicant if they do not meet the requirements referred to in this paragraph.

(b) Each applicant for a space station authorization in the fixed-satellite service must demonstrate, on the basis of the documentation contained in its application, that it is legally, financially, technically, and otherwise qualified to proceed expeditiously with the construction, launch and/or operation of each proposed space station facility immediately upon grant of the requested authorization. Each applicant must provide the following information:

(1) The information specified in § 25.114;

(2) An interference analysis to demonstrate the compatibility of its proposed system 2 degrees from any authorized space station. An applicant should provide details of its proposed r.f. carriers which it believes should be taken into account in this analysis. At

a minimum, the applicant must include, for each type of r.f. carrier, the link noise budget, modulation parameters, and overall link performance analysis. (*See, e.g.*, appendices B and C to Licensing of Space Stations in the Domestic Fixed-Satellite Service (available at address in § 0.445 of this chapter));

(3) The estimated costs of proposed construction and/or launch, and any other initial expenses for the space station(s); and

(4) Estimated operating expenses for one year after launch of the proposed space station(s).

(c) Each application for authority to construct and/or launch and operate a space station shall demonstrate the applicant's current financial ability to meet the costs specified in paragraphs (b)(3) and (b)(4) of this section by submitting the following financial information verified by affidavit:

(1) A balance sheet current for the latest fiscal year and documentation of any financial commitments reflected in the balance sheet (such as, for example, loan agreements and service contracts) together with an exhibit demonstrating that the applicant has current assets and operating income sufficient to meet the costs specified in paragraphs (b)(3) and (b)(4) of this section. If the applicant is owned by more than one corporate parent, it must submit evidence of a commitment to the proposed satellite program by management of the corporate parent upon whom it is relying for financial resources;

(2) If the submissions of paragraph (c)(1) of this section do not reflect sufficient financial resources to meet the costs specified in paragraphs (b)(3) and (b)(4) of this section, the applicant shall submit additional information as listed below:

(i) The terms of any fully negotiated loan or other form of credit arrangement intended to be used to finance the proposed construction, acquisition, or operation of the requested facilities including such information as the identity of the creditor (or creditors), the amount committed, letters of commitment, detailed terms of the transaction, including the details of any contingencies, and a statement that